

REMARKS

This amendment is responsive to the Office Action mailed March 30, 2005.

In the Office Action, the Examiner objected to Claim 11, line 4, "optical disk having a wobbled" and requested that it be changed to "optical disk having a wobbled track." Applicant has amended the language of Claim 11, as suggested by the Examiner, as above.

Applicant appreciates the Examiner's indication that Claims 7-10 of the present application include allowable subject matter.

In the Office Action, Claims 1-6 were rejected under 35 U.S.C. § 102 in view of Yukihiisa, JP 2001-110056A. Applicant respectfully traverses the rejection and submits the following. In this regard, prior to discussing why the claims of the present application, some of which have been amended to more specifically recite the subject matter that applicant considers as his invention, are allowable, a brief description of an embodiment of the present invention and the cited and applied prior art is set forth. It should be noted that the following is provided merely to assist the Examiner's understanding of the present invention, and is not intended to limit the scope of the claims.

In one embodiment of the present application, an optical disk device comprises "wobble signal reproducing means" for reproducing a wobble signal both during recording periods (i.e., during a period of irradiation of the light beam with a recording power) and reproduction periods (i.e., during a period of irradiation of the light beam with a reproduction power). As described in the original application as filed:

[B]y reproducing the wobble signal not only within the period of the light beam of recording power, but also within a period of the light beam of reproduction power, it is possible to obtain address information without deteriorating the S/N ratio because even if reproduction of the wobble signal is not successful during a short signal period in a high-speed recording operation, the wobble signal can be reproduced during the period of the light beam of recording power and the period of the light beam of reproduction power in other signal durations.

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(Page 8, lines 5-13.)

[Referring to Figure 2, t]he wobble signal is reproduced not only during a period 100 of the light beam of reproduction power but also during a period 102 of the light beam of recording power. A comparative study of Fig. 2 and Fig. 8 shows that the wobble signal reproduction timing of the present invention is completely different from that of the prior art. It will be appreciated that the reproduction of wobble signal achieved not only during the period of the light beam of reproduction power but also during the period of the light beam of recording power improves the S/N ratio of the wobble signal because even if the sampling is not possible during a short signal period such as $3T$ at the time of high-speed recording, the wobble signal can be reproduced more frequently than the prior art. (Page 13, lines 5-16.)

Additional to the wobble signal sampled during a period of the light beam of reproduction power as in the case of the conventional device, the wobble signal sampled during a period of the light beam of recording power is supplied to the BPF 18r. Accordingly, *even if the wobble signal cannot be reproduced in a short duration of signal such as $3T$ or $4T$ at a time of high-speed recording*, it is possible for the demodulator 18s to demodulate address information accurately at a low error rate from the wobble signal.

(Page 16, line 24 - Page 17, line 7, emphasis added).

Thus, according to one aspect of the present invention, the "wobble signal reproducing means" reproduces a wobble signal both during *recording* periods and *reproduction* periods so that address information can always be accurately demodulated even if, for example, a wobble signal cannot be reproduced in a short duration of signal *at a time of high-speed recording*.

On the other hand, Yukihiisa teaches reproducing (or sampling) wobble signals during *recording* periods when the recording speed is relatively high, while reproducing wobble signals during *reproduction* periods when the recording speed is relatively low. (See Abstract: "at the recording speed lower than a prescribed recording speed, the sample and hold of a light receiving signal for detecting a wobble signal is performed when a recording signal is powered off [i.e., during *reproduction* periods], and at the recording speed larger than the prescribed recording speed, the sample and hold is performed when the recording signal is powered on. [i.e., during *recording* periods].") See also, [0016], [0017], and Figure 3 of Yukihiisa.) Therefore, by

requiring that the wobble signal reproduction be switched between *recording* periods and *reproduction* periods **depending on the recording speed**, Yukihiisa actually teaches away from reproducing wobble signals both during the *recording* periods and *reproduction* periods **at any given recording speed**. In other words, at any given recording speed, Yukihiisa requires reproducing wobble signals *either* during *recording* periods *or* during *reproduction* periods; as such, Yukihiisa does not at all disclose or suggest an aspect of the present invention directed to reproducing wobble signals *both* during *recording* periods *and* *reproduction* periods **at any given recording speed**.

Claim 1, as amended, explicitly recites this aspect of the invention, that "at any given recording speed" the wobble signal reproducing means reproduces a wobble signal "within a period of irradiation of the light beam with a recording power and also reproduces the wobble signal within a period of irradiation of the light beam with a reproduction power." As discussed above, this aspect of the invention is not taught or suggested by Yukihiisa, and accordingly it is respectfully submitted that Claim 1, as amended, is allowable.

Claim 5, as amended, requires "sample-hold circuits that sample and hold the first and second output signals, respectively, *during a period of the light beam of recording power*" (emphasis added), "a differentiator that determines a difference between two signals from said sample-hold circuits," "second sample-hold circuits that sample and hold the first and second output signals *during a period of the light beam of reproduction power*" (emphasis added), and "the second differentiator that determines a difference between two signals from said second sample-hold circuits," wherein the "wobble signal is reproduced on the basis of an output of said differentiator and an output of said second differentiator." Thus, Claim 5 explicitly recites sampling and holding output signals both "during a period of the light beam of recording power" and "during a period of the light beam of reproduction power," so as to eventually reproduce a

wobble signal "on the basis of an output of said differentiator [coupled to the recording-power sample-hold circuits] and an output of said second differentiator [coupled to the reproduction-power sample-hold circuits]. As discussed above, Yukihiisa, on the other hand, teaches sampling wobble signals *either* during recording periods *or* during *reproduction* periods depending on the recording speed, and as such does not at all teach or suggest reproducing a wobble signal "on the basis of an output of said differentiator and an output of said second differentiator" as explicitly recited in amended Claim 5. Accordingly, it is respectfully submitted that Claim 5, as amended, is allowable over Yukihiisa.

Claims 3 and 4 have been canceled. Claims 2 and 6-10 are dependent from amended Claims 1 and 5, respectively, and, therefore, these claims are also believed to be allowable for at least the same reasons why amended Claims 1 and 5 are allowable.

In the Office Action, Claim 11 was rejected under 35 U.S.C. § 103 over Yukihiisa in view of Ogawa et al., U.S. Patent No. 5,459,706. Applicant respectfully traverses the rejection of this claim and submits the following.

In the Office Action, the Examiner admits that Yukihiisa does not disclose "amplifiers that amplify the first and second output signals during a period of the light beam of recording power and a period of the light beam of reproduction power, respectively, at different amplification factors corresponding to the recording power and the reproduction power." The Examiner, therefore, relies on Ogawa for the alleged disclosure of the amplifiers. Ogawa's amplifiers, however, do not at all have the functions of the amplifiers as explicitly recited in Claim 11.

Specifically, Ogawa, referring to its Figure 1, discloses two normalizing circuits 8 and 9, which are used to normalize the outputs from the first and second photodetectors 1 and 2 "by the reproduction RF signal so as to reduce the influence by a recording signal." (Col. 2, lines 39-42;

53-56.) The outputs from the first and second photodetectors are each compared with the reproduction RF signal level, and the normalizers are controlled such that "the output signal level on the photodiode 1 side and the output signal level on the photodiode 2 side are normalized so as to be equal." (Col. 4, lines 17-38.) Therefore, Ogawa's amplifiers are intended to equalize the power output levels of the two photodetectors.

On the other hand, the amplifiers of the present invention are intended to equalize the power levels during *recording* periods and *reproduction* periods, and to that end amplify the first and second output signals during *recording* periods and *reproduction* periods "at different amplification factors corresponding to the recording power and the reproduction power." Most notably, Ogawa does not at all teach or suggest the amplifiers' use of "different amplification factors corresponding to the recording power and the reproduction power," as explicitly recited in Claim 11. As such, Ogawa does not cure the deficiency of Yukihiisa, and accordingly, Yukihiisa and Ogawa, even in combination, do not render the subject matter of Claim 11 obvious. Therefore, it is respectfully submitted that Claim 11 is allowable over Yukihiisa in view of Ogawa.

Based on the foregoing, the present application including Claims 1-2 and 5-11, as amended, is in condition for allowance. An early and favorable action passing the present application to issuance as a patent is respectfully solicited. If the Examiner should have further issues to resolve, he is invited to telephone applicant's undersigned attorney at the number set forth below.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date: June 30, 2005 Shoko Leek

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AMENDMENTS TO THE DRAWINGS

Replacement drawing sheets with FIGURES 7 and 8 are attached herewith. Replacement FIGURES 7 and 8 are designated by a legend, "Prior Art," as requested by the Examiner.

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